

RESPONSE UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 08/960,224

With regard to Applicants' independent claim 1, as explained in Applicants' Amendment filed September 19, 2001 in the parent to this CPA, one of the features of the embodiment of Applicants' invention as claimed in claim 1, is changing the thickness of the liquid crystal layer in each color layer in order to efficiently control coloring when viewing from an oblique direction in the IPS mode liquid crystal display element having a wide view angle. Shimizu and Oh-e do, do not teach or suggest the structure for an active matrix liquid crystal display panel as claimed in Applicants' independent claim 1, "whereby an appearance of white color is gained by applying different driving voltages to the pixel electrodes, depending upon the different thickness of the crystal layers in each of the color layers" (*Id.*).

The Examiner alleges that Shimizu and the newly cited Ogawa teach the application of different driving voltage, as required by Applicants' claim 1 (Office Action, page 4). Applicants respectfully disagree.

First, while Shimizu recognizes that "electrical field strength and light path length of cell gap must be varied by changing the thickness of red, green and blue image elements for the purpose of improving contrast" (*Id.*, col. 1, lines 45-48), Shimizu does not disclose or suggest varying the level of driving voltages applied to pixel electrodes. In fact, Shimizu has nothing to do with the level of driving voltages applied to the pixel electrodes. Instead, Shimizu discloses various structures for a color filter, which is the object of Shimizu's patent (see, Shimizu, col. 2, lines 27-32).

Next, Ogawa discloses a liquid crystal display apparatus wherein "thickness of the liquid crystal layer is made different for different color picture elements" (*Id.*, Abstract), and:

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When the impressed voltage is raised, the transmittance of longer wavelength dominantly rises. By impression of a relatively high voltage close to the saturation voltage (above 3 V in the graph), at last, all lights of blue, green and red show almost uniform transmittance. (Id., col. 7, lines 14-19; see Figs. 9(a), 9(b), 10 and 11).

While Ogawa describes the general principle of transmittance being a function of the wavelength and applied voltage, and provides a structure wherein “undesired wavelength-dependency of the transmittance is eliminated” (Id., col. 7, lines 54-61 and col. 8, lines 2-7), Ogawa does not disclose or suggest an active matrix liquid crystal display panel configured for “applying different driving voltages to the pixel electrodes, depending upon the different thickness of the crystal layers in each of the color layers”, as required by Applicants’ claim 1. That is, Ogawa discloses nothing more than a color liquid crystal display apparatus, modified to eliminate wavelength-dependency of the transmittance, wherein the same driving voltage is applied to all pixel electrodes irrespective of the thickness of the crystal layer (see e.g., Id., col. 7, lines 10-27).

Accordingly, Applicants’ independent claim 1, as well as its dependent claim 2 (which incorporates all the novel and unobvious features of its base claim 1), would not have been obvious from any reasonable combination of Oh-e, Shimizu and Ogawa.

With regard to Applicants independent claims 3 and 5, one of the features of the embodiments of Applicants’ invention as claimed therein, is “said pixel electrodes and said opposing electrodes being spaced from each other by distances which are different for the individual color layers” (claims 3 and 5). Contrary to the Examiner’s analysis, Utsumi does not disclose, teach or suggest such a feature. In fact, Utsumi discloses nothing more than a

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conventional configuration of the electrodes in a liquid crystal display panel wherein pixel electrodes and common electrodes are arranged at identical distances from each other (see Utsumi, col. 11, line 61 through col. 13, line 9; Figs. 21(a) and 21(b)). Nowhere does Utsumi disclose or suggest that spacing between the pixel electrodes and opposing electrodes has any relation to the color filters corresponding to the pixel electrodes.

Likewise, Shimizu does not disclose, teach or suggest pixel electrodes and opposing electrodes being spaced from each other by distances which are different for the individual color layers (see Shimizu, Fig. 1).

Accordingly, Applicants' independent claims 3 and 5, as well as their respective dependent claim 4 and 6 (which incorporates all the novel and unobvious features of their base claims), would not have been obvious from any reasonable combination of Utsumi and Shimizu.

With regard to Applicants' independent claim 7, one of the features of the embodiment of Applicants' invention as claimed therein, is:

an optical compensation layer having a negative refractive index anisotropy in a one axis direction, a projection of the anisotropic axis of said optical compensation layer on a plane of one of said substrates being parallel to at least one of polarization axes of said two polarizing plates, said optical compensation layer being disposed at least between the one transparent insulating substrate and a corresponding one of said polarizing plates (claim 7).

The Examiner acknowledges that Utsumi does not disclose such a feature and relies on Yamahara to supply this acknowledged deficiency. Yamahara discloses a liquid crystal display device which employs therein a phase difference plate. In particular, Yamahara discloses a "phase difference plate negative in the refractive index anisotropy, with the principal refractive

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indices in the relation of  $nz=nc<nb$ " (Id., col. 5, lines 29-31; see Fig. 1), arranged such that "the principal refractive index nb is inclined in the direction of arrow 20 at an angle  $\theta$  around the y-axis about the normal direction of the surface (the z-axis in Fig. 1)" (Id., col. 7, lines 22-25). In contrast to the arrangement of the optical compensation layer as defined in Applicants' claim 7, Yamahara does not disclose or suggest that the projection of the direction of the principal refractive index nb on plane x-y (see Yamahara, Figs. 1) is parallel to the polarization axis either of the polarizers 3 or 4.

Likewise, Wada does not disclose or suggest "an optical compensation layer having a negative refractive index anisotropy in a one axis direction, a projection of the anisotropic axis of said optical compensation layer on a plane of one of said substrates being parallel to at least one of polarization axes of said two polarizing plates", as required by Applicants' claim 7. (see Wada, col. 5, line 48 through col. 6, line 25; see also Fig. 8).

Accordingly, Applicants' independent claim 7, as well as its dependent claim 8-15 (which incorporates all the novel and unobvious features of their base claim), would not have been obvious from any reasonable combination of Utsumi, Yamahara and Wada.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

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Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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